9-12.N.1.1. Students are able to **evaluate** a scientific discovery to **determine** and **describe** how societal, cultural, and personal beliefs influence scientific investigations and interpretations.

Webb Level: 4
Bloom: Evaluation

Verbs Defined:
Evaluate - judge the value of
Determine – find appropriate information
Describe - tell in words or numbers

Key Terms Defined:
Scientific discovery – a finding based on experiments
Societal beliefs - opinions of people living together
Cultural beliefs - views based on religion or race
Personal beliefs - ideas of the scientist
Scientific investigations - experiments designed to find out about something
Scientific interpretations - explanations of what experiment results mean

Teacher Speak:
Students will be able to evaluate (judge the value of) a scientific discovery (a finding based on experiments) to determine (find appropriate information) and describe (tell in words or numbers) how societal beliefs (opinions of people living together), cultural beliefs (views based on religion or race), and personal beliefs (ideas of the scientist) influence scientific investigations (experiments designed to find out about something) and interpretations (explanations of what experiment results mean).

Student Speak:
I can judge the value of (evaluate) a finding based on experiments (scientific discovery) to find appropriate information about (determine) and tell in words or numbers (describe) how
- opinions of people living together (societal beliefs)
- views based on religion or race (cultural beliefs) and
- ideas of the scientist (personal beliefs)

influence experiments designed to find out about something (scientific investigations) and explanations of what experiment results mean (scientific interpretations).

9-12.N.1.2. Students are able to **describe** the role of observation and evidence in the development and modification of hypotheses, theories, and laws.

Webb Level: 2
Bloom: Synthesis

Verbs Defined:
Describe – tell in words or numbers

Key Terms Defined:
Observation – information gathered by use of senses and instruments
Evidence – experimental results used to support a conclusion
Hypotheses – explanations that can be tested
Theories – well-tested explanations based on observation, experimentation, and reasoning
Laws – generalizations that describe recurring facts or events in nature

Teacher Speak:
Students will be able to describe (tell in words or numbers) the role of observation (information gathered by use of senses and instruments) and evidence (experimental results used to support a conclusion) in the development and modification of:
- hypotheses (explanations that can be tested)
- theories (well-tested explanations based on observation, experimentation, and reasoning)
- laws (generalizations that describe recurring facts or events in nature).

Student Speak:
I can tell in words or numbers (describe) the role of information gathered by use of senses and instruments (observation) and experimental results used to support a conclusion (evidence) in the development and modification of:
- explanations that can be tested of (hypotheses)
- well-tested explanations based on observation, experimentation, and reasoning (theories)
- generalizations that describe recurring facts or events in nature (laws).

9-12.N.2.1. Students are able to **apply** science process skills to **design** and **conduct** student investigations. (Synthesis)

Web Level: 4
Bloom: Synthesis

Verbs Defined:
Apply - to use what you know
Design - plan
Conduct – perform

Key Terms Defined:
Science process skills - form a hypothesis, develop a procedure, select and correctly use appropriate instruments, revise explanations based on evidence, form conclusions, and communicate and defend the results
Investigations - experiments

Teacher Speak:
Students will be able to apply (to use what you know) science process skills (form a hypothesis, develop a procedure, select and correctly use appropriate instruments, revise explanations based on evidence, form conclusions, and communicate and defend the results) to design (plan) and conduct (perform) investigations (experiments).

Student Speak:
I can use what I know (apply) to:
- form a hypothesis
- develop a procedure
- select and correctly use appropriate instruments
- revise explanations based on evidence
- form conclusions
- communicate and defend the results

(science process skills) to plan (design) and perform (conduct) experiments (investigations).

9-12.N.2.2. Students are able to **practice** safe and effective laboratory techniques.

Webb Level: 3
Bloom: Application

Verbs Defined:
Practice – perform repeatedly

Key Terms Defined:
Laboratory techniques – calibrations, measurements and handling of chemicals and instruments

Teacher Speak:
Student will be able to practice (perform repeatedly) safe and effective laboratory techniques (calibrations, measurements and handling of chemicals and instruments).

Student Speak:
I can perform repeatedly (practice) safe and effective calibrations, measurements and handling of chemicals and instruments (laboratory techniques).